Re-run

A. Kubelik



RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/047,593

DATE: 12/06/2002 TIME: 17:44:19

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\12062002\J047593.raw

4 <110> APPLICANT: Crane, Edmund H. III 5 Rice, Douglas A. 7 <120> TITLE OF INVENTION: Maize NPR1 Polynucleotides and Methods of Use 10 <130> FILE REFERENCE: 1090D2 C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/047,593 C--> 12 <141> CURRENT FILING DATE: 2002-01-15 12 <150> PRIOR APPLICATION NUMBER: 60/130,692 13 <151> PRIOR FILING DATE: 1999-04-23 15 <150> PRIOR APPLICATION NUMBER: 09/551,778 16 <151> PRIOR FILING DATE: 2000-04-18 18 <160> NUMBER OF SEQ ID NOS: 6 20 <170> SOFTWARE: FastSEQ for Windows Version 4.0 22 <210> SEQ ID NO: 1 23 <211> LENGTH: 2154 24 <212> TYPE: DNA 25 <213> ORGANISM: Zea mays



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27 <220> FEATURE:

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31 <221> NAME/KEY: 3'UTR

32 <222> LOCATION: (1933)...(2154)

W--> 34 <221> 5'UTR

35 <222> LOCATION: (1)...(66)

W--> 37 < 400 > 1

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	39	gaa	gcc	atg	gag	ccg	tcg	tcg	tcc	atc	acα	ttc	aca	tca	tca	t ca	tca	108
	40			Met	Glu	Pro	Ser	Ser	Ser	Ile	Thr	Phe	Ala	Ser	Ser	Ser	Sor	100
	41			1				5					10	001	001	DCI	JCI	
	43	tac	ctg	tcc	aac	ggc	tcg	agc	ccc	tgt	tcc	ato	aca	cta	cca	cca	cca	156
	44	Tyr	Leu	Ser	Asn	Gly	Ser	Ser	Pro	Cvs	Ser	Val	Ala	Leu	Pro	Pro	Pro	100
	45	15					20					25					30	
	47	ggg	ccg	CCC	cag	act	ccc	ccg	ttg	cct	qcc	aac	caq	aaa	taa	aat	aat	204
	48	Gly	Pro	Pro	Gln	Thr	Pro	Pro	Leu	Pro	Ála	Glv	Gln	Glv	Trn	Glv	Glv	201
	49					35					40	1	0211	OL y	TIP	45	Ory	
	51	gga	gtc	gct	gcc	gca	ggg	agc	gga	qqc	agc	ata	σασ	acc	ata	aαc	cta	252
	52	Gly	Val	Ala	Ala	Ala	Gly	Ser	Gly	Ğĺv	Ser	Val	Ğlü	Ala	Val	Ser	Len	202
	53				50		-		-	55					60	OCI	пси	
	55	aac	cgg	ctc	agc	aaa	aac	ctc	gag	cqq	ctq	ctc	ctc	gac	cca	gac	cta	300
	56	Asn	Arg	Leu	Ser	Lys	Asn	Leu	Glu	Arg	Leu	Leu	Leu	Asp	Pro	Asp	Len	300
	57			65		_			70	,				75		ПОР	Deu	
,	59	gac	tgc	agc	gac	gcc	qac	qtc	gat	ata	ccc	gac	aat	aaa	cca	CCC	αt a	348
4	60	Asp	Cys	Ser	Asp	Āla	Āsp	Val	Āsp	Val	Pro	Asp	Glv	Glv	Pro	Pro	Val	240
		_			-				- 1-		0		~± y	OT A		110	v ca T	

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63 ccc att cac cgc tgc atc ctt gcc gca cgc agc gac ttc ttc tac gac 64 Pro IIe His Arg Cys IIe Leu Ala Ala Arg Ser Asp Phe Phe Tyr Asp 65 95 100 105 110 67 ctc ttc gcc gct cgc ggc gcc ggg ggc agc gcg ggt gat gcg gcc 68 Leu Phe Ala Ala Arg Gly Arg Ala Gly Ala Arg Gly Asp Ala Ala Glu Gly Ala Ala Arg Gly Asp Ala Ala Arg Gly Asp Ala Ala Glu Gly Ala Ala Arg Gly Arg Ala Gly Arg Gly Arg Arg Ala Gly Arg Ala Gly Arg Gly Arg Arg Arg Gly Arg Ala Gly Arg Ala Gly Arg Arg Arg Gly Arg Arg Arg Gly	61		80					85					90					
64 Pro 11e His Arg Cys 11e Leu Ala Ala Arg Ser Asp Phe Phe Tyr Asp 65 95 100 105 110 67 ctc ttc gc gct cgc ggc gca ggg gca ggg gcc gcc ggt gat gcc gg gcc 444 68 Leu Phe Ala Ala Arg Gly Arg Ala Gly Ala Ala Arg Gly Asp Ala Ala 69 115 120 125 71 gcc gcc gcc gga gta gcc gcg gag ggg gct gcc act gga agg ccc gcg 492 72 Ala Gly Ala Gly Val Ala Ala Glu Gly Ala Ala Ser Gly Arg Pro Arg 73 130 130 135 150 75 tac aag atg gag gtc tcc gtc gcg gtc ggg ggc gcc gag gcc 76 Tyr Lys Met Glu Asp Leu Val Pro Ala Gly Arg Val Gly Arg Glu Ala 77 145 150 150 79 ttc cag gcg ttt ctg ggg tac ctg tac acc ggc agg gcc gcg gag gcc 80 Phe Gln Ala Phe Leu Gly Tyr Leu Tyr Thr Gly Lys Leu Arg Pro Ala 81 160 165 170 83 ccc gtc gac gtg gtg tct ttg gct gac cca gtg tgc cat cac gat tcg 84 Pro Val Asp Val Val Ser Cys Ala Asp Pro Val Cys His His Asp Ser 85 175 180 87 tgc ccg ccg gcc atc agg tcc gcg ggt gcc gg gcg gcg gcg 88 Cys Pro Pro Ala 11e Arg Ser Ala Val Glu Leu Met Tyr Ala Ala Cys 89 195 200 205 91 acc ttc aag atc ccc gag ctc acc tcq ctc tcc atg tac gcg gct gt gt gct ttt gcg try acc ttc acc gcc gcg gct gcc gcc gcc gcc gcc gcc g	63	ccc	atc	cac	cgc	tgc	atc	ctt	qcc	qca	cac	aσc	gac	ttc	ttc	tac	gac	396
100	64	Pro	Ile	His	Arg	Cys	Ile	Leu	Ăla	Ála	Arq	Ser	Asp	Phe	Phe	Tvr	Asp	330
67 ctc ttc gcc gct cgc ggc cgc gag ggg gca gcc gcg ggt gat gcc gcc gcc 68 Leu Phe Ala Ala Arg Gly Arg Ala Gly Arg Ala Ala Arg Gly Asp Ala Ala Ala Gly Ala Gly Ala Gly Ala Ala Ser Gly Arg Pro Arg Arg Ala Gly Ala Gly Val Ala Ala Gly Gly Ala Ala Ser Gly Arg Pro Arg Arg Arg Ala Gly Val Ala Ala Gly Gly Ala Ala Ser Gly Arg Pro Arg Arg Arg Arg Ala Gly Val Ala Ala Gly Gly Ala Ala Ser Gly Arg Glu Arg Arg Arg Arg Ala Gly Arg Val Gly Arg Glu Arg Arg Arg Ala Gly Arg Val Gly Arg Glu Arg Arg Arg Ala Gly Arg Glu Arg	65	95					100					105					110	
69	67	ctc	ttc	gcc	gct	cgc	ggc	cgc	gca	ggg	gca	gcg	cqc	ggt	gat	aca	acc	444
115	68	Leu	Phe	Ala	Ala	Arg	Gly	Arg	Ala	Gly	Āla	Ālā	Arq	ĞÎy	Āsp	Ala	Ala	
136	69					115					120					125		
136	71	gcc	ggc	gcc	gga	gta	gcc	gcg	gag	ggg	gct	gcc	agt	gga	agg	ccq	caa	492
130	12	Ala	Gly	Ala	Gly	Val	Ala	Ala	Glu	Gly	Ala	Ala	Ser	Gly	Arg	Pro	Arg	
17	13				130					135					140			
17	75	tac	aag	atg	gag	gat	ctc	gtt	CCC	gcc	ggc	cgc	gtg	ggg	cgc	gag	qcc	540
145	76	Tyr	Lys	Met	Glu	Asp	Leu	Val	Pro	Ala	Gly	Arg	Val	Gly	Arg	Ğlu	Āla	
80 Phe Gin Ala Phe Leu Gly Tyr Leu Tyr Thr Gly Lys Leu Arg Pro Ala 81	//			145					150					155				
80 Phe Gin Ala Phe Leu Gly Tyr Leu Tyr Thr Gly Lys Leu Arg Pro Ala 81	79	ttc	cag	gcg	ttt	ctg	ggg	tac	ctg	tac	acc	ggc	aag	ctc	cgg	ccg	gca	588
160	80	Phe	Gin	Ala	Phe	Leu	Gly	Tyr	Leu	Tyr	Thr	Gly	Lys	Leu	Arg	Pro	Āla	
84 Pro Val Asp Val Val Ser Cys Ala Asp Pro Val Cys His His Asp Ser 195 175 180 180 185 175 180 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 175 185 175 185 175 180 185 175 180 185 175 180 185 175 180 185 175 180 185 185 185 185 185 185 185 185 185 185	8 T		T 0 0					165					170					
185	83	ccg	gtc	gac	gtg	gtg	tct	tgt	gct	gac	cca	gtg	tgc	cat	cac	gat	tcg	636
185	84	Pro	Val	Asp	Val	Val	Ser	Cys	Ala	Asp	Pro	Val	Cys	His	His	Asp	Ser	
88 Cys Pro Pro Ala Ile Arg Ser Ala Val Glu Leu Met Tyr Ala Ala Cys 205 91 acc ttc aag atc ccc gag ctc acc tcg ctc ttc cag cgc cgg ctt ctt 732 92 Thr Phe Lys Ile Pro Glu Leu Thr Ser Leu Phe Gln Arg Arg Leu Leu 215 93 210 95 aat ttt gta gac aag act cta gtg gag gat gtt att cct att ctg gaa 780 96 Asn Phe Val Asp Lys Thr Leu Val Glu Asp Val Ile Pro Ile Leu Glu 235 99 gtt gct tcc cac tca ggg ctg act caa gtg atc gac aaa tgt att caa 828 100 Val Ala Ser His Ser Gly Leu Thr Gln Val Ile Asp Lys Cys Ile Gln 240 101 240 103 agg att gct aga tca gat ctc gac gat ata tct ttg gat aag gag ctc 876 104 Arg Ile Ala Arg Ser Asp Leu Asp Asp Ile Ser Leu Asp Lys Glu Leu 105 255 260 270 107 cct cca gaa gca gtt gat gag ata aaa aat ttg cgc aag aag tca caa 108 108 Pro Pro Glu Ala Val Asp Glu Ile Lys Asn Leu Arg Lys Lys Ser Gln 275 111 act gct gat ggt gat acg ttc att tcg gac cct gtg cat gag aaa aga 972 112 Thr Ala Asp Gly Asp Thr Phe Ile Ser Asp Pro Val His Glu Lys Arg 300 115 gtc aga aga atc cac agg gca ctt gac ct gat gat gt gat gat gat gat gat gat gat																	190	
91 acc ttc aag atc ccc gag ctc acc ttc cag cgc cgg ctc ttct 92 Thr Phe Lys Ile Pro Glu Leu Thr Ser Leu Phe Gln Arg Arg Leu Leu 93 210 215 220 95 aat ttt gta gac aag act cta gtg gag gat gtt att cct att ctg gaa 780 96 Asn Phe Val Asp Lys Thr Leu Val Glu Asp Val Ile Pro Ile Leu Glu 97 225 230 235 99 gtt gct tcc cac tca ggg ctg act caa gtg atc gac aaa tgt att caa 828 100 Val Ala Ser His Ser Gly Leu Thr Gln Val Ile Asp Lys Cys Ile Gln 101 240 245 250 103 agg att gct aga tca gat ctc gac gat ata tct ttg gat aag gag ctc 876 104 Arg Ile Ala Arg Ser Asp Leu Asp Asp Ile Ser Leu Asp Lys Glu Leu 105 255 260 265 270 107 cct cca gaa gca gtt gat gag ata aaa att ttg gat aag gag ctc aca 924 108 Pro Pro Glu Ala Val Asp Glu Ile Lys Asn Leu Arg Lys Ser Gln 109 275 280 285 111 act gct gat ggt gat acg ttc att tcg gac cct gtg cat gag aaa aga 972 112 Thr Ala Asp Gly Asp Thr Phe Ile Ser Asp Pro Val His Glu Lys Arg 113 290 295 115 gtc aga aga atc cac agg gca ctt gac tt gat gat gat gat gat gat gat gat gat	87	tgc	ccg	ccg	gcc	atc	agg	tcc	gcg	gtc	gag	ctc	atg	tac	gcg	gcg	tgt	684
91 acc ttc aag atc ccc gag ctc acc tcg ctc ttc cag cgc cgc ctt ctt 92 Thr Phe Lys Ile Pro Glu Leu Thr Ser Leu Phe Gln Arg Arg Leu Leu 93	88	Cys	Pro	Pro	Ala	lle	Arg	Ser	Ala	Val		Leu	Met	Tyr	Ala	Ala	Cys	
92 Thr Phe Lys Ile Pro Glu Leu Thr Ser Leu Phe Gln Arg Arg Leu Leu 220 93 210 215 220 95 aat ttt gta gac aag act cta gtg gag gat gtt att cct att ctg gaa 780 96 Asn Phe Val Asp Lys Thr Leu Val Glu Asp Val Ile Pro Ile Leu Glu 235 99 gtt gct tcc cac tca ggg ctg act caa gtg atc gac aaa tgt att caa 828 100 Val Ala Ser His Ser Gly Leu Thr Gln Val Ile Asp Lys Cys Ile Gln 245 250 103 agg att gct aga tca gat ctc gac gat ata tct ttg gat aag gag ctc 876 104 Arg Ile Ala Arg Ser Asp Leu Asp Asp Ile Ser Leu Asp Lys Glu Leu 270 107 cct cca gaa gca gtt gat gag ata aaa aat ttg cgc aag aag tca caa 924 108 Pro Pro Glu Ala Val Asp Glu Ile Lys Asn Leu Arg Lys Ser Gln 270 111 act gct gat ggt gat acg ttc att tcg gac cct gtg cat gag aaa aga 972 112 Thr Ala Asp Gly Asp Thr Phe Ile Ser Asp Pro Val His Glu Lys Arg 300 115 gtc aga aga atc cac agg gca ctt gac tct gac tct gat gat gat gac gtt gat gag ata 295 116 Val Arg Arg Ile His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val 315 119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gcc acg acg at gcc acg at gcc acg acg acg ctc gat gag aag ttg gcc acg acg acg ctc gac acg acg ctc gac acg acg ctc gac acg acg ctc gac acg cac acg acg acg acg ctc gac acg acg acg ctc gac acg acg acg acg ctc gac acg acg acg acg acg acg acg acg ac	-															205		
95 aat ttt gta gac aag act cta gtg gag gat gtt att cct att ctg gaa 780 96 Asn Phe Val Asp Lys Thr Leu Val Glu Asp Val Ile Pro Ile Leu Glu 97 225 230 235 99 gtt gct tcc cac tca ggg ctg act caa gtg atc gac aaa tgt att caa 828 100 Val Ala Ser His Ser Gly Leu Thr Gln Val Ile Asp Lys Cys Ile Gln 101 240 245 250 103 agg att gct aga tca gat ctc gac gat ata tct ttg gat aag gag ctc 876 104 Arg Ile Ala Arg Ser Asp Leu Asp Asp Ile Ser Leu Asp Lys Glu Leu 105 255 260 265 270 107 cct cca gaa gca gtt gat gag ata aaa aat ttg cgc aag aag tca caa 924 108 Pro Pro Glu Ala Val Asp Glu Ile Lys Asn Leu Arg Lys Lys Ser Gln 109 275 280 285 111 act gct gat ggt gat acg tt att tcg gac cct gtg cat gaa aag 972 112 Thr Ala Asp Gly Asp Thr Phe Ile Ser Asp Pro Val His Glu Lys Arg 113 290 295 300 115 gtc aga aga atc cac agg gca ctt gac tct gat gat gtt gag gtt gtt gag gtt gtt gac gtt gat gac tct gat gat gtt gat gac act ta gat gtt gat gac act cac aca 1020 116 Val Arg Arg Ile His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val 117 305 310 315 119 aag ttg ctt ctt aat gag tcc gac act aca tta gat gac gca acc gca 1068 120 Lys Leu Leu Leu Asn Glu Ser Asp Ile Thr Leu Asp Asp Asp Ala Asn Ala 321 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	31	acc mb.s	Dha	aag	atc	CCC	gag	ctc	acc	tcg	ctc	ttc	cag	cgc	cgg	ctt	ctt	732
95 aat ttt gta gac aag act cta gtg gag gat gtt att cct att ctg gaa 96 Asn Phe Val Asp Lys Thr Leu Val Glu Asp Val Ile Pro Ile Leu Glu 97	92	1111	rne	гĀS	11e	Pro	GIU	Leu	Thr		Leu	Phe	Gln	Arg		Leu	Leu	
96 Ash Phe Val Asp Lys Thr Leu Val Glu Asp Val Ile Pro Ile Leu Glu 97		22+	+++	~+ ~				- 1							220			
99 gtt gct tcc cac tca ggg ctg act caa gtg atc gac aaa tgt att caa 828 100 Val Ala Ser His Ser Gly Leu Thr Gln Val Ile Asp Lys Cys Ile Gln 101	96	aaι Nen	Dho	yıa Wal	yac	aag	act	cta	gtg	gag	gat	gtt	att	cct	att	ctg	gaa	780
99 gtt gct tcc cac tca ggg ctg act caa gtg atc gac aaa tgt att caa 100 Val Ala Ser His Ser Gly Leu Thr Gln Val Ile Asp Lys Cys Ile Gln 101	97	N311	FIIE	225	ASP	ьys	Thr	ьeu	vai	GIu	Asp	Val			Ile	Leu	Glu	
The color of the	-	at t	act		C2C	tas	~~~							235				
101	100	Val	Δla	Ser	Hie	Sar	999	r Tan	aCL Th∽	Caa	gra	atc	gac	aaa	tgt	att	caa	828
103 agg att gct aga tca gat ctc gac gat ata tct ttg gat aag gag ctc 104 Arg Ile Ala Arg Ser Asp Leu Asp Asp Ile Ser Leu Asp Lys Glu Leu 105 255	101		240	001	1115	UCI	СТУ	245	1111	GIII	Val	тте			Cys	TTE	GIn	
104 Arg IIe Ala Arg Ser Asp Leu Asp Asp IIe Ser Leu Asp Lys Glu Leu 265 270 107 cct cca gaa gca gtt gat gag ata aaa aat ttg cgc aag aag tca caa 924 108 Pro Pro Glu Ala Val Asp Glu IIe Lys Asn Leu Arg Lys Lys Ser Gln 285 111 act gct gat ggt gat acg ttc att tcg gac cct gtg cat gag aaa aga 972 112 Thr Ala Asp Gly Asp Thr Phe IIe Ser Asp Pro Val His Glu Lys Arg 290 295 300 115 gtc aga aga atc cac agg gca ctt gac tct gat gat gtt gag ctt gtg 1020 116 Val Arg Arg IIe His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val 305 310 119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gc aac gca 1068 120 Lys Leu Leu Leu Ash Glu Ser Asp IIe Thr Leu Asp Asp Ala Ash Ala 25 325 111 acc cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116		aαα			aga	tca	gat			ast	2+2	+ a+	250	~~+	2.5			07.6
260 265 270	104	Arq	Ile	Ala	Ara	Ser	Asn	Len	Asn	Den	Tla	Sor	Tou	yaı	aag	gag	CTC	8/6
107 cct cca gaa gca gtt gat gag ata aaa aat ttg cgc aag aag tca caa 924 108 Pro Pro Glu Ala Val Asp Glu Ile Lys Asn Leu Arg Lys Lys Ser Gln 109	105	255			9	501	260	пси	пэр	Азр	116			ASP	гуѕ	GIU		
108 Pro Pro Glu Ala Val Asp Glu Ile Lys Asn Leu Arg Lys Lys Ser Gln 109	107	cct	cca	αaa	αca	att			ata	aaa	aat	±+~	cac	224	226	+ ~ ~	270	004
275 280 285 111 act gct gat ggt gat acg ttc att tcg gac cct gtg cat gag aaa aga 972 112 Thr Ala Asp Gly Asp Thr Phe Ile Ser Asp Pro Val His Glu Lys Arg 113 290 295 300 115 gtc aga aga atc cac agg gca ctt gac tct gat gat gtt gag ctt gtg 116 Val Arg Arg Ile His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val 117 305 310 315 119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gcc aac gca 120 Lys Leu Leu Leu Asn Glu Ser Asp Ile Thr Leu Asp Asp Ala Asn Ala 121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	108	Pro	Pro	Glu	Ala	Val	Asp	Glu	Tle	Lvs	Asn	Len	Ara	Tuc	aay	Cox	Cla	924
111 act gct gat ggt gat acg ttc att tcg gac cct gtg cat gag aaa aga 972 112 Thr Ala Asp Gly Asp Thr Phe Ile Ser Asp Pro Val His Glu Lys Arg 113	109					275		014		Lyo			ALG	цуз	гу			
The Ala Asp Gly Asp The Phe Ile Ser Asp Pro Val His Glu Lys Arg 290 295 300 115 gtc aga aga atc cac agg gca ctt gac tct gat gat gtt gag ctt gtg 1020 116 Val Arg Arg Ile His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val 315 119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gcc aac gca 1068 120 Lys Leu Leu Leu Asp Glu Ser Asp Ile The Leu Asp Asp Ala Asp Ala 121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	111	act	gct	gat	ggt	gat	acq	ttc	att	t.ca			ata	cat	gag	200	202	972
290 295 300 115 gtc aga aga atc cac agg gca ctt gac tct gat gat gtt gag ctt gtg 116 Val Arg Arg Ile His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val 117 305 310 315 119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gcc aac gca 120 Lys Leu Leu Leu Asn Glu Ser Asp Ile Thr Leu Asp Asp Ala Asn Ala 121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	112	Thr	Āla	Āsp	ĞÎy	Asp	Thr	Phe	Ile	Ser	Asp	Pro	Val	His	Glu	Tue	aya ۸ra	912
115 gtc aga aga atc cac agg gca ctt gac tct gat gat gtt gag ctt gtg 116 Val Arg Arg Ile His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val 117 305 310 315 119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gcc aac gca 120 Lys Leu Leu Asn Glu Ser Asp Ile Thr Leu Asp Asp Ala Asn Ala 121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	113			-	290	•					· · · · ·	110	vai	1110		шуз	AIG	
116 Val Arg Arg IIe His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val 117 305 310 315 119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gcc aac gca 120 Lys Leu Leu Leu Asn Glu Ser Asp IIe Thr Leu Asp Asp Ala Asn Ala 121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	115	gtc	aga	aga	atc	cac	agg	qca	ctt	gac	tct	gat	αat	att	gag	ct+	ata	1020
117 305 310 315 119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gcc aac gca 1068 120 Lys Leu Leu Leu Asn Glu Ser Asp Ile Thr Leu Asp Asp Ala Asn Ala 121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	116	Val	Arg	Arg	Ile	His	Arg	Āla	Leu	Asp	Ser	Asp	Asn	Val	Glu	Len	Val	1020
119 aag ttg ctt ctt aat gag tcc gac atc aca tta gat gat gcc aac gca 120 Lys Leu Leu Leu Asn Glu Ser Asp Ile Thr Leu Asp Asp Ala Asn Ala 121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	117			305			,		310			1101	···op		OLU	пси	Val	
120 Lys Leu Leu Asn Glu Ser Asp Ile Thr Leu Asp Asp Ala Asn Ala 121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	119	aag	ttg	ctt	ctt	aat	gaq	tcc	gac	atc	aca	tta	qat	gat	acc	aac	aca	1068
121 320 325 330 123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	120	Lys	Leu	Leu	Leu	Asn	Ğlu	Ser	Ásp	Ile	Thr	Leu	Asp	Asp	Ala	Asn	Ala	1000
123 tta cac tat gct gct tct tac tgt gat cct aaa gtt gtc tca gag ctg 1116 124 Leu His Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu	121		320					325					330					
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	124	ьeu	His	Tyr	Ala	Ala	Ser	Tyr	Cys	Āsp	Pro	Lys	Val	Val	Ser	Glu	Leu	
	125	335					340		•	=								

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129) тес	ı ASL	ь тег	ı Ala	мет 355) Ala	Asn	ı Lei	ı Asr	1 Leu 360		Ası	ı Ser	Arg	Gly 365	Tyr	
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132	? Thr	. Ála	Lei	His	Lei	ıΔla	Δla	Mot	700	, ago		D~	1 9CC	. ala	. all	Met	1212
133	3			370	1				375	i				380)		
135	tgt	cto	ctt	aac	aaa	ggg	gca	aat	gtg	r tca	caa	cto	aca	act	gat	ggc	1260
136	Cys	Leu	Leu	Asn	Lys	Gly	Āla	Asr	. Val	Ser	Gln	Lei	Thr	· Ala	Asn	Gly	1200
137	'		385)				390)				395		_	_	
1,35	agg	ago	gca	att	ggt	att	tgt	cgg	agg	tta	aca	aga	ı gca	aaa	gac	tac	1308
140	Arg	Ser	Ala	Ile	Gly	Ile	Cys	Arg	Arg	Leu	Thr	Arg	, Ala	Lys	Asp	Tyr	
141		400					405					410)				
143	aat	aca	aag	atg	gag	cag	ggt	caa	gaa	tca	aat	aaa	gat	aqq	cta	tgt	1356
144	Asn	Thr	Lys	Met	Glu	Gln	Gly	Gln	Glu	Ser	Asn	Lys	Asp	Ara	Leu	Cys	
145	415					420					425		-	,		430	
147	ata	gat	att	cta	gag	agg	gag	atq	atq	caa	aat	cct	ato	aca	ata	gaa	1404
148	Ile	Asp	Ile	Leu	Glu	Arg	Ğlu	Met	Met	Ara	Asn	Pro	Met	Ala	Val	Glu	1704
149					435	_				440			1100	1110	445	Olu	
151	gat	gcc	gtc	acc	tca	cct	tta	tta	gca			ctt	cac	ata	220	c++	1452
152	Asp	Āla	Val	Thr	Ser	Pro	Len	Len	Ala	Asn	Aen	Len	uic.	Mo+	Tue	Tou	1432
153	•			450				200	455	7100	тър	цси	1113	460	ьуз	ьец	
		tac	cta		aac	aga	att	aca	ttt	act	202	++~	++-				1500
156	Leu	Tvr	Len	Glu	Asn	Ara	Val	η Cα Δ1 a	Phe	712	aya Ara	tau	Dha	Db.	CCE	gct	1500
157		- 1	465	014	11011	1119	vai	470	1116	Ата	Arg	ьeu		File	Pro	Ата	
	αаа	acc		atc	acc	ata	C2.2		gca		~ ~ ~		475				
160	Glu	Ala	Lvs	Val	Δla	Mot	Cln	Tlo	Ala	Cla	yca 71-	gac	acc	aca	gaa	gaa	1548
161	014	480	БуЗ	var	пια	116.0	485	116	Ald	GIII	Ala		Inr	Thr	Glu	GIu	
	ttc		aat	at a	at t	~		~~~	~~~			490					
164	Phe	Glv	61 tz	Tla	Val	71a	77-1	yca	gca	agc	act	tct	ggt	aaa	ctg	agg	1596
165	495	ОТУ	оту	116	vaı	500	Val	нта	Ăla	ser		Ser	GLY	Lys	Leu		
		ata	a a c	c++	2 2 ±		200	~~~			505					510	
168	Glu	Val	7 cn	Tou	Aar.	Clu	mb -	D	gtg	aca	caa	aac	aaa	agg	ctc	cgt	1644
169	OIU	Val	лэр	ьец	515	GIU	IIII	Pro	Val		GIn	Asn	Lys	Arg		Arg	
	tca	200	at a	ant.		~				520					525		
172	Sor	۸×۵	y La	yac Nam	yca N1-	Tarr	acg	aaa	aca	gtg	gag	ctg	ggc	cgt	cgg	tac	1692
173	Ser	ALG	vaı	ASP	нта	ьeu	мет	ьys	Thr	Val	Glu	Leu	GLy		Arg	Tyr	
	++-	~~~		530					535					540			
176	Dha	Dwa	adC	Lgc	tcg	cag	gtg	ctg	gac	aag	ttc	ctg	gag	gac	gat	ctg	1740
177	rne	PIO	ASI	Cys	Ser	GIn	val		Āsp	Lys	Phe	Leu	Glu	Asp	Asp	Leu	
177			545					550					555				
1/9	ccg	gaa	ggt	ctg	gac	cag	ttc	tac	ctc	cag	agg	ggc	aca	gcc	gat	gag	1788
100	Pro	GIU	GLy	Leu	Asp	Gln	Pne	Tyr	Leu	Gln	Arg	Gly	Thr	Ala	Asp	Glu	
181		560	. ,				565					570					
183	cag	aag	gtg	aag	agg	atg	cgc	ttc	tgc	gag	ctg	aaa	gag	gac	gtg	ctg	1836
184	GIn	Lys	Val	Lys	Arg	Met	Arg	Phe	Cys	Glu	Leu	Lys	Glu	Asp	Val	Leu	
182	5/5					580					585					590	
18/	aag	gcg	ttt	agc	aag	gac	aag	gcg	gag	ggc	agc	gtg	ttc	tcg	ggc	ctg	1884
100	ràs	Ala	Phe	Ser	Lys	Asp	Lys	Ala	Ğlū	Gly	Ser	Val	Phe	Ser	Gly	Leu	
189					595					600					605		
191	tcc	tcg	tcg	tcg	tcg	tgc	tcg	ccg	ссс	cag	aag	tat	gcc	cag	agg		1929
											-		-	_			

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Input Set : A:\PTO.AMC.txt

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192 193	2 Sei	r Sei	s Sei	Ser 610		Cys	S Ser	Pro	Pro 615		ı Lys	з Туз	c Ala	a Glr 620		3	
195	i tga	atcaa	aggc	acca	gttt	tt c	ccqt	atac	ıt tt	atta	atcat	: aat	atta	naa	acti	anaccc	1989
198	196 ggacagcata tagggacatg tacacctgtg tatgtatagt gcttacaatt ggcgtaagta														2049		
197																2109	
198	ato	ggccc	gaag	tgct	ctat	gc c	aaaa	aaaa	ia aa	aaaa	aaaaa		aaa	auuu	agat	-gaaaag	2154
200	<21	0> 5	EQ 1	D NC): 2		_						uu				2134
				TH: 6													
202	2 <21	l2> T	YPE:	PRI	•												
				NISM:		mav	'S										
205	<40)0> S	EQUE	INCE:	2												
						Ser	Ile	Thr	Phe	Ala	Ser	Ser	Ser	Ser	ጥ፣ታ	Leu	
207	' 1				5					10		001		. 501	15	. Deu	
208	Ser	Asn	Gly	Ser	Ser	Pro	Cvs	Ser	Val		Len	Pro	Pro	Pro	. Gla	Pro	
209)		-	20			- 4 -		25				, , ,	30	, Gry	IIO	
210	Pro	Gln	Thr	Pro	Pro	Leu	Pro	Ala	Glv	Gln	Glv	Trr	Glu	, Glu	cl _v	. Val	
211			35					40	<u> </u>	0.1.1	. 019		45	Оту	GIY	vai	
212	Ala	Ala	Ala	Gly	Ser	Glv	Glv		Val	Glu	Δ1а	Val	Ser	· Lan	7) CD	Arg	
213		50		-		1	55			010		60	Jer	пеи	ASII	Arg	
214	Leu	Ser	Lys	Asn	Leu	Glu		Leu	Len	ī.eu	Asn	Pro	Aen	Lau	7) cm	Cys	
215	65		-			70	9	200	БСС	шец	75	110	лор	пец	Asp		
216	Ser	Asp	Ala	Asp	Val		Val	Pro	Asn	Glv		Dro	Dro	. Wal	Dro	80 Ile	
217		-		<u>T</u> -	85	Пор			тор	90	оту	110	FIO	vaı	95	тте	
218	His	Arq	Cvs	Ile		Ala	Ala	Ara	Ser		Pho	Pho	Фул	Λαn	700	Phe	
219		,	1	100				9	105		1116	1110	тут	110		Pile	
220	Ala	Ala	Ara			Ala	Glv	Ala			Glv	Aen	ת 1 ת	710	7.1.	Gly	
221			115		,		1	120		1119	O.L.y	1150	125	пта	нта	GTÀ	
222	Ala	Gly	Val	Ala	Ala	Glu	Glv		Ala	Ser	Glv	Δνα	Dro	7~~	Ф	Lys	
223		130					135			001	OLY	140	110	Arg	ı yı	пуѕ	
224	Met	Glu	Asp	Leu	Val	Pro		Glv	Ara	Val	Glv	Ara	Glu	ЛΊэ	Dho	Gln	
225	145		•			150		1	9	·uı	155	1119	OIU	лια	rne	160	
226	Ala	Phe	Leu	Gly	Tyr		Tvr	Thr	Glv	Lvs	Len	Ara	Pro	Ala	Pro	Vol.	
227				-	165		4 -		1	170	200	· · · · · · · · · ·	110	тта	175	vai	
228	Asp	Val	Val	Ser	Cys	Ala	Asp	Pro	Val		His	His	Asn	Ser	Cve	Dro	
229				180	-				185	0,10		1110	mp	190	Суз	110	
230	Pro	Ala	Ile	Arq	Ser	Ala	Val	Glu		Met	Tur	Ala	Δla	Cys	Thr	Pho	
231			195	_				200			- 7 -	1114	205	Cys	1111	rne	
232	Lys	Ile	Pro	Glu	Leu	Thr	Ser		Phe	Gln	Ara	Ara	I.eu	Leu	Aen	Pho	
233	_	210					215			0111	111.9	220	Бец	пец	ASII	riie	
234	Val	Asp	Lys	Thr	Leu	Val		Asp	Val	Tle	Pro	71 ₀	Lan	Glu	Wal	ת ד ת	
235	225	•	-			230				110	235	116	Бец	GIU	vaı		
236	Ser	His	Ser	Glv	Leu		Gln	Val	Tle	Asn	Luc	Cue	Tlo	Gln	7~~	240	
237				1	245			• • •	***	250	пуз	∪y5	тте	GŤII	Arg 255	тте	
	Ala	Ara	Ser	Asp		Asp	Asp	Tle	Ser	Len	Δερ	Luc	Gl v	Leu	200	Dro	
239		5		260	~0 u	-100	.13p		265	neu	vah	пÀ2	GIU		rro	Pro	
	Glu	Ala	Val		Glu	Tlo	Luc	Δερ		71 ~~	T	T	C	270 Gln	m L	70.7	
241			275	-102	J. U		-Jy3	280	มสน	лту	пλ2	тÀг		GTU	ınr	ATG	
	Asp	Glv		Thr	Pho	Tla	Spr		Dro	17-1	ui ~	C1	285	Arg	T7 - 3	7	
243	P	290	-101	T 11T	- 116	116	295	vəħ	LTO	val	пт2		гÀ2	Arg	val	Arg	
							290					300					

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244 Arg Ile His Arg Ala Leu Asp Ser Asp Asp Val Glu Leu Val Lys Leu 310 315 246 Leu Leu Asn Glu Ser Asp Ile Thr Leu Asp Asp Ala Asn Ala Leu His 325 330 248 Tyr Ala Ala Ser Tyr Cys Asp Pro Lys Val Val Ser Glu Leu Leu Asp 340 345 250 Leu Ala Met Ala Asn Leu Asn Leu Lys Asn Ser Arg Gly Tyr Thr Ala 360 252 Leu His Leu Ala Ala Met Arg Arg Glu Pro Ala Ile Ile Met Cys Leu 375 254 Leu Asn Lys Gly Ala Asn Val Ser Gln Leu Thr Ala Asp Gly Arg Ser 255 385 390 395 256 Ala Ile Gly Ile Cys Arg Arg Leu Thr Arg Ala Lys Asp Tyr Asn Thr 405 410 258 Lys Met Glu Gln Gly Gln Glu Ser Asn Lys Asp Arg Leu Cys Ile Asp 420 425 260 Ile Leu Glu Arg Glu Met Met Arg Asn Pro Met Ala Val Glu Asp Ala 435 440 262 Val Thr Ser Pro Leu Leu Ala Asp Asp Leu His Met Lys Leu Leu Tyr 450 455 264 Leu Glu Asn Arg Val Ala Phe Ala Arg Leu Phe Phe Pro Ala Glu Ala 470 266 Lys Val Ala Met Gln Ile Ala Gln Ala Asp Thr Thr Glu Glu Phe Gly 485 490 268 Gly Ile Val Ala Val Ala Ala Ser Thr Ser Gly Lys Leu Arg Glu Val 500 505 270 Asp Leu Asn Glu Thr Pro Val Thr Gln Asn Lys Arg Leu Arg Ser Arg 515 520 272 Val Asp Ala Leu Met Lys Thr Val Glu Leu Gly Arg Arg Tyr Phe Pro 530 535 274 Asn Cys Ser Gln Val Leu Asp Lys Phe Leu Glu Asp Asp Leu Pro Glu 550 555 276 Gly Leu Asp Gln Phe Tyr Leu Gln Arg Gly Thr Ala Asp Glu Gln Lys 565 570 278 Val Lys Arg Met Arg Phe Cys Glu Leu Lys Glu Asp Val Leu Lys Ala 580 585 281 Phe Ser Lys Asp Lys Ala Glu Gly Ser Val Phe Ser Gly Leu Ser Ser 595 285 Ser Ser Ser Cys Ser Pro Pro Gln Lys Tyr Ala Gln Arg 615 288 <210> SEQ ID NO: 3 289 <211> LENGTH: 7789 290 <212> TYPE: DNA 291 <213> ORGANISM: Zea mays 293 <220> FEATURE: 294 <221> NAME/KEY: promoter 295 <222> LOCATION: (1)...(2715) 297 <221> NAME/KEY: 5'UTR 298 <222> LOCATION: (2716)...(2781)

VERIFICATION SUMMARY

DATE: 12/06/2002

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L:12 M:270 C: Current Application Number differs, Replaced Current Application No L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date L:34 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1 L:37 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1L:300 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3 L:303 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3 L:306 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3 L:309 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3 L:312 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3 L:315 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3 L:318 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3 L:321 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3 L:324 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:3